

ANTIMICROBIAL STEWARDSHIP

Name of Institution: McGill University
Location: MUHC, JGH
Type of Fellowship: Clinical and research
Number of positions: 1 per year
Length: 12 months

Program Information:

- Number of fellowship positions requested: 1 per year
- Academic affiliation: McGill University, Department of Medicine, Division of Infectious Diseases
- Name of hospitals involved in training: MUHC
- % time spent by the fellow in each institution: 80% MUHC; 20% JGH

PROGRAM INFORMATION

Background:

The misuse of antimicrobials has contributed to the global rise in Antimicrobial resistance (AMR). Inappropriate antimicrobial prescriptions in acute care hospitals leads to serious adverse events in individual patients and the emergence of drug-resistant pathogens in the healthcare setting. Optimizing antimicrobial use within healthcare systems is therefore a critical patient safety issue and is identified as a strategic priority in the fight against AMR. Antimicrobial Stewardship (AS) is an area of focused competence within the discipline of Infectious Diseases (ID), that is concerned with the study of appropriate/optimal use and surveillance of antimicrobial agents.

The goal of this fellowship is to train leaders in the field of AS through a combination of coursework, hands-on clinical activities, and scholarly projects. Fellows will have the opportunity to learn from and work with ID specialists, microbiologists, pharmacists, and researchers from the McGill University network of hospitals.

Members of the McGill division of ID lead active clinical research programs with a strong translational focus relevant to AS, notably:

- Clinical studies correlating the quality of antimicrobial prescriptions with the intestinal microbiota;
- Trials to improve the treatment of infectious diseases (trials of drugs and of duration of treatment),
- Trials assessing the impact of diagnostics on antimicrobial utilization, and others.

Our members work closely with other departments (including Pharmacy, Technology Assessment Unit, Infection Prevention and Control) on specific projects. They are also involved

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in global educational activities and hold various advisory roles for the prevention and management of antimicrobial resistance.

During their training, fellows will pursue mentored scholarly activities that may include writing a scholarly review, development of educational curricula, quality improvement or clinical research projects. Fellows interested in pursuing advanced training in clinical research with a research mentor may extend their fellowship conditional on availability of funding.

Mission

The mission of this fellowship is to foster the next generation of Infectious Diseases leaders in Antimicrobial Stewardship, giving them the experience and mentorship needed to optimize utilization of antimicrobials and improve health care delivery.

Outline how intended fellowship will enhance residency training

Currently residents enrolled in the ID/MM training program do a 2-4 week AS block at the MUHC or JGH, supervised by an ID faculty. This experience serves as an introduction to the discipline and can be further enhanced by the fellowship since the fellow(s) will supervise some of the residents' educational activities. Further, fellow-led projects may provide opportunities for residents to participate in scholarly activities.

AS fellows will also contribute to the ID-MM program's formal didactic teaching activities and will give at least 1 presentation during the divisional academic half-day (academic half-days, inter-hospital rounds, journal club).

Faculty:

Name of the Fellowship Program Director: Dr Makeda Semret

Dr Semret is currently the IDMM training program director but will also serve as the AS fellowship director because of her leading role in Antimicrobial Stewardship at the main AS teaching site, the MUHC. Because of her dual role, another member of the ID Residency Training Committee (generally the chair of the Promotions committee) will be selected to lead the evaluation of the AS fellowship and to review the formal evaluations of the clinical fellow during the semi-annual Promotions and Competency sub-committee meetings.

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Teaching Faculty

Name	Role	Summary of clinical practice	Major strengths
Makeda Semret	Associate Professor, McGill University Antimicrobial Stewardship Program lead, MUHC and AS committee chair Director of the Infectious Diseases and Medical Microbiology Training Program of McGill University Clinical Researcher, Infectious Diseases and Immunity in Global Health axis, Research Institute- MUHC	ID clinical service and Medical Microbiology Canadian PI for the PILGRIM consortium (Impact of antimicrobial prescription quality and infection Control on gut microbiota domination by Healthcare associated pathogens) Principal Investigator for Impact of laboratory-supported stewardship interventions in hospitalized patients in Ethiopia Site PI for CONCOR-1 (convalescent plasma for therapy of COVID-19)	Clinical expertise in infections and in diagnostic microbiology AS Program implementation and management Clinical research on AMR (observational cohorts and interventional trials)
Marty Teltsher	Assistant Professor, McGill University Antimicrobial Stewardship Lead, JGH	ID clinical service and Medical Microbiology Outpatient Infectious Diseases clinic section head at JGH Former director, infectious diseases and medical microbiology training program	Clinical expertise in infections and medical microbiology AS Program implementation and management Resident training

Additional faculty:

Since AS is one of the 4 pillars of the core practice of Infectious Diseases, many of the ID faculty are members of the AS committee, and contribute to AS activities (audit-feedback, point prevalence surveys, treatment guideline development and review). The individuals listed below are expected to provide teaching on an ad-hoc basis, supervision during audit-feedback activities; and/or assist with supervision of scholarly projects.

- Dr Todd Lee (Associate Professor of Medicine, clinician-scientist at the RI-MUHC)
- Dr Charles Frenette (Director of Infection Prevention and Control, MUHC)
- Ms Qian LI (Pharmacy Lead for the AS program and AS committee co-chair);
- Dr Daniel Thirion (PharmD and Professor of Pharmacy at Université de Montréal)

Further information on ID division available at: <https://www.mcgill.ca/infect-diseases/division>

Academic Facilities: Outline facilities for clinical and academic pursuit

The fellow will work in tertiary and quaternary care hospitals that provide specialized hematology-oncology (including solid and stem-cell transplants), emergency and intensive care, complex and subspecialized surgery, obstetrical, gynecological, and medical care for adult patients.

- The fellow will learn to evaluate the appropriateness of antimicrobial prescriptions in individual cases through focused reviews of clinical data and provide recommendations about optimizing antimicrobial management
- The fellow will learn to review meta-data extracted from hospital databases and calculate common metrics for antimicrobial consumption, analyze trends of antimicrobial consumption over time and the impact of specific intervention on antimicrobial usage
- The fellow will learn to interpret antibiogram data and incorporate it in empiric treatment advice
- The fellow will develop a deep understanding of the factors contributing to AMR, including knowledge of resistance mechanisms at the individual and populational level
- The fellow will contribute to the creation and dissemination of knowledge in AS by leading or contributing to a quality improvement or a clinical research project under the supervision of AS faculty.

The fellow will be predominantly based at the MUHC (Glen site) where they will have a dedicated desk and computer, within the ID and Microbiology cluster on E5.

When located at the JGH or MGH, the fellow will have access to flex offices.

At all sites, the fellow will have access to libraries, electronic journals, a subscription to the IDSA online AS course and other multimedia learning materials as appropriate.

Fellow Duties and Responsibilities

- The fellow is expected to do 1 month of clinical ID service per year of training
- The fellow is expected to do 1 month of Microbiology rotation per year of training
- The fellow is expected to do a minimum of 8 periods per year of AS clinical service (ward audit-feedback and point prevalence survey) with stewardship pharmacists and ID supervisor
- The fellow is expected to participate as a member of the AS committee, develop and/or revise infectious diseases treatment guidelines in collaboration with team members
- The fellow is expected to provide supervision and teaching in AS for ID residents (PGY4 and 5) during specific periods
- The fellow is expected to participate in divisional journal clubs and IHID, and to present at least once per year

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- The fellow is expected to participate in, or lead, at least one scholarly activity that will be presented at a conference or published in a peer-reviewed journal. The fellow will have access to support from Dr Semret's research team for scholarly activities.

Curriculum:

- The fellow will be provided reading material including relevant articles, and offered online enrollment in AS courses at the beginning of fellowship
- The fellow will be provided reading materials and semi-structured educational sessions on PK-PD and therapeutic drug monitoring, important drug-drug interactions
- The fellow will attend and participate in Thursday morning academic half days, and in weekly clinical case rounds (Friday noon rounds) where patients of interest are presented and discussed
- The fellow will receive training on hospital information systems and software (laboratory and pharmacy databases), to analyze trends in antimicrobial usage, and identify areas requiring specific intervention

Evaluations

The fellow will be evaluated formally at least every 3 months by the fellowship director. These evaluations will be based on

- Formal evaluation of the clinical ID service and microbiology month by supervising faculty
- written feedback provided by AS team members (stewardship pharmacists and infectious diseases faculty) on the fellows' performance on the clinical AS service (audit-feedback sessions);
- written feedback provided by members of the ID division for presentations given during Journal club or Interhospital ID rounds
- Completion of a quality improvement or research project related to AS initiatives

The fellow who will have satisfactorily met the requirements of training will receive a Certificate for the AS fellowship, conferred by the division of Infectious Diseases of McGill University.

Junior Attending in Antimicrobial Stewardship (Clinical Fellowship)

McGill University

Postgraduate Training program in Infectious Diseases

Rotation Goals and Objectives

McGill University Health Centre (MUHC) and Jewish General Hospital (JGH)

GENERAL INFORMATION

Overview:

Clinical fellows in Antimicrobial Stewardship (AS) are expected to do a total of 8 months on the AS service, in the role of Junior Attending. During these rotations, the fellow will be expected to function at the level of an independent ID consultant on the AS service with respect to management, interaction with pharmacists and clinical treating teams, teaching of ID residents and pharmacy residents, and interacting with other health care providers.

While developing the core competencies of antibiotic stewardship, the fellow will actively supervise, teach and evaluate ID-Micro trainees on the AS service in close consultation with the attending supervisor. They will independently collaborate with individuals and teams of professionals in the hospital setting and contribute to stewardship committee meetings.

Further, they will also be encouraged to initiate a stewardship project. Examples of this type of project include initiating a surveillance program of antibiotic usage on an inpatient ward/unit, identifying the main problems in antibiotic use on that unit, and planning a structured multidisciplinary intervention program to improve its use

Learning context:

The stewardship rotations will be held at the MUHC and the JGH and will be supervised by the AS medical leads at each institution.

Rotation specific objectives

The fellow should be able to

MEDICAL EXPERT

- Demonstrate expert knowledge on the principles and practice of drug classification and consumption metrics
- Demonstrate ability to calculate, interpret and describe common measures of antimicrobial utilization from pharmacy or other databases
- Perform reviews of antimicrobial use in individual patients and determine appropriate courses of action

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- Describe the epidemiology of antimicrobial resistance with an excellent understanding of prevalence, incidence and contributing factors
- Integrate knowledge on resistance mechanism into appropriate choices for antimicrobial treatment at the individual level, and for institutional treatment guidelines
- Demonstrate expert knowledge on developing cumulative antibiograms, and ability to incorporate it in empiric treatment recommendations

COMMUNICATOR

- Raise awareness of benefits associated with AS programs through effective professional relationships
- Demonstrate a positive, respectful and non-judgmental attitude towards other health professionals (eg: physicians whose practices are being audited or analysed by the stewardship program)
- Document and share written information about antimicrobial usage to treating teams and staff in various departments
- Address challenging situations (such as non-compliance to ASP suggestions) effectively through respectful dialogue and through presentation of evidence-based data

COLLABORATOR

- Participate effectively and appropriately in AS rounds with pharmacist and ID supervisor
- Work actively within the AS team to improve antimicrobial use in specific departments and wards, through the use of audit-feedback and educational activities
- Recognize that ASP activities and policies can be a source of conflict between the stewardship service and other physicians, including ID colleagues, and identify strategies to minimize or resolve these conflicts through collaborative negotiations
- Demonstrate self-awareness and recognize one's own differences and limitations that might contribute to inter-professional tension and conflicts

LEADER

- Analyse trends in prescribing patterns and antimicrobial use to identify strategies for further improvement
- Provide recommendations regarding formulary management to ensure resources are utilized for optimal antimicrobial use
- Work collaboratively to develop written protocols and therapeutic guidelines for rational antimicrobial utilization strategies throughout the institution
- Provide guidance for evaluation of targeted prescribing interventions and clinical pathways

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- Participate effectively in antimicrobial stewardship/P&T committees
- Contribute to a culture of patient safety through effective links with the quality committee, the P&T committee and the Infection Prevention and Control committee
- Recognize the ID physician's role in ASP implementation and management including financial process and advocacy for increased resources when appropriate

HEALTH ADVOCATE

- Describe the determinants of health particular to individual patients that might impact stewardship interventions (dialysis patients, morbidly obese patients, pediatric patients, pregnancy, allergies, special hosts)
- Describe the factors (policies, regulations, practices, behaviors) involved in misuse of antibiotic at local and international/global level
- Identify opportunities for advocacy on rational use of antibiotics (e.g. educating community groups on limiting antibiotics for URTIs, acute diarrhea)
- When appropriate, participate in activities occurring during patient safety week and world antimicrobial awareness week

SCHOLAR

- Engage in continuous professional activities through ongoing critical appraisal of the medical literature and devise a personal learning plan to enhance professional practice in AS
- Integrate best available AS evidence into practice through a continuous process of searching relevant literature
- Plan and deliver learning activities in AS to ID-med micro trainees, pharmacists and other healthcare
- Contribute to the dissemination of knowledge through a summarizing and communicating findings of relevant research and scholarly inquiry related to antimicrobial use

PROFESSIONAL

- Demonstrate self-awareness of limitations of ability and knowledge, and request assistance when appropriate and necessary
- Conduct themselves in a professional manner at all times demonstrating consideration for the benefit of the health system and its stakeholders and how the AS practice and policies impacts upon them
- Address element of conflicts of interest, which in stewardship can involve interaction between pharmaceutical industry and physicians, administrators, and/or pharmacists
- Demonstrate appropriate flexibility and willingness to be open to divergent opinions and acknowledge the possibility of errors and take the measures to address them.

